Qiuyi Wu

Address	Duke University Department of Biostatistics & Bioinformatics 2424 Erwin Rd, Durham, NC 27705, US	**Google Scholar** **Email** **Webpage** **LinkedIn**	Qiuyi Wu qiuyi.wu@duke.edu drqiuyiwu.github.io linkedin.com/in/qiuyi-wu

Research Interests Functional Data Analysis, Kernel Smoothing, Image Processing, High Dimensional Regression, Text Mining, Recommender System, Spatial Statistics, AI Fairness

ORCID ID https://orcid.org/0000-0002-9273-4700

Employment

Sep.2024 - Present **Duke University**, Department of Biostatistics and Bioinformatics, US
Postdoc Research Fellow
Mentor: Dr. Anru Zhang

Education

2019-2024 Ph.D., Statistics, United States
University of Rochester, Department of Biostatistics and Computational Biology
Advisor: Dr. Xing Qiu

2016-2018 M.S., Applied Statistics, United States
Rochester Institute of Technology, School of Mathematical Sciences
Advisor: Dr. Ernest Fokoue

2012-2016 B.Econ., Finance, China
Donghua University, Glorious Sun School of Business and Management

Honors and Awards

Scholarship

- **William Jackson Hall Graduate Student Fellowship** for academic excellence, 2023-2024
  awarded annually to one PhD student in UR Biostat Dept through the combination of outstanding performance in coursework and qualifying exams; excellence in their service as a graduate student teaching assistant; and timely completion of a dissertation containing work judged to be of particular significance in both its methodological contribution and potential impact in applications.
- **Dean's Ph.D. Fellowship** for PhD study in University of Rochester, 2019-2021
- **RIT Merit Scholarship** for Master Study in RIT, 2016-2018

Conference Award

- **Clinton Miller Award** for Best Student Poster in SRCOS Summer Research Conference, *Clemson*, 2024
- **Gold Medal for Best Methodology and Theory Award** in UPSTAT Conference, 2024
- **Gold Medal for Data Analytics Competition** in UPSTAT Conference, 2021
- **ASA Section on Text Analysis Best Student Presentation Award** in JSM Conference, 2020
- **Gold Medal for Best Student Research Award** in UPSTAT Conference, 2019

- **NC ASA Young Researcher Award** in AISC Conference, 2018
- **Gold Medal for Best Computation and Application Award** in UPSTAT Conference, 2018
- **Promising Academic Leader Award** in UPSTAT Conference, 2018
- **Young Scientific Leader Award** in UPSTAT Conference, 2017
- **Student Scholarship Winners** for SAS Global Forum, 2017

Travel Award

- **ASA Travel Award** for Preparing to Teach Statistics and Data Science Workshop, *Oregon*, 2024
- **Travel Award** for FutureBAProf Workshop, *Iowa*, 2024
- **NSF/Boyd Harshbarger Travel Award** for SRCOS Summer Research Conference, *Clemson*, 2024
- **SIAM Travel Award** for SIAM SEAS Conference, *VT*, 2023
- **ASA BIPOC DWMP Travel Award** for JSM Conference, *Washington DC*, 2022
- **SAMSI Travel Award** for Closing Ceremony, *Duke*, 2021
- **ACNN Travel Award** for Big Data Neuroscience Workshop, *UMich*, 2019
- **SAMSI Travel Award** for Deep Learning Opening Workshop, *Duke*, 2019
- **ASA Travel Award** for IMS/ASA Spring Research Conference, *VT*, 2019
- **RIT Research & Creativity Travel Award** for JSM Conference, *Vancouver*, 2018

Publications

Published or Accepted:

2023 LeBlanc, P., Banks, D., Fu, L., Li, M., Tang, Z., **Wu, Q.** (2023). "Recommender Systems: A Review"
Journal of the American Statistical Association (2023): 1-21. doi: 10.1080/01621459.2023.2279695

2023 Panisch, L., Murphy, H., **Wu, Q.** et al (2023). "Adverse childhood experiences predict diurnal cortisol throughout gestation." *Psychosomatic Medicine.* 85(6), 507-516.

2022 **Wu, Q.** et al (2022). "A conditional approach for joint estimation of wind speed and direction under future climates." *Advances in Statistical Climatology, Meteorology and Oceanography* 8.2: 205-224.

2022 Murphy, H., Gu, Y., **Wu, Q.**, et al (2022). "Prenatal Diurnal Cortisol: Normative Patterns and Associations with Affective Symptoms and Stress." *Psychoneuroendocrinology (2022):* 105856.

2021 Frigau, L., **Wu, Q.**, Banks, D. (2021). "Optimizing the JSM Program."
Journal of the American Statistical Association (2021): 1-21. doi: 10.1080/01621459.2021.1978466

2018 **Wu, Q.**, Fokoue, E., & Kudithipudi, D. (2018). "An Ensemble Learning Approach to the Predictive Stability of Echo State Networks. *Journal Of Informatics And Mathematical Sciences"*, 10(1 & 2), 181 - 199. doi: 10.26713/jims.v10i1-2.827

2018 **Wu, Q.** (2018). "Statistical Aspects of Music Mining: Naive Dictionary Representation." *Thesis.* RIT Scholar Works. *Accessed from https://scholarworks.rit.edu/theses/9932*

In Preparation:

2025 **Wu, Q.**, Qiu, X. (2025). Image Processing with Optimally Designed Parabolic Partial Differential Equations

2025 **Wu, Q.**, Qiu, X. (2025). Optimal Gaussian Kernel Smoothing Strategy

Ad-hoc

2021   Short Interview Piece appears in July 2021 issue of Amstat News magazine
"TAIG Contest Winners Tell of Experience"

Research Experience

Jun.2022 -
Aug.2022
Liberty Mutual Insurance Company, GRS Advanced Analytics team, US
Data Scientist Intern

Mentor: Dr. Robert Yuen
Project Topic: Predicting the profitability of construction projects via structured data and NLP

Jun.2020 -
Aug.2020
Argonne National Laboratory (ANL), CELS/EVS Division, US
Research Aide Intern

Mentor: Dr. Jiali Wang & Dr. Whitney Huang & Dr. Julie Bessac
Research Fields: Uncertainty Quantification; Wind Modeling

Jun.2019 -
Aug.2019
Argonne National Laboratory (ANL), CELS/MCS Division, US
Research Associate

Mentor: Dr. Julie Bessac & Dr. Whitney Huang & Dr. Jiali Wang
Research Fields: Spatial Statistics; Extreme Value Analysis

May.2018 -
May.2019
Statistical and Applied Mathematical Sciences Institute (SAMSI), US
Graduate Research Fellow

Mentor: Dr. David Banks
Research Fields: Text Mining; Spatial Statistics

Dec.2016 -
Nov.2017
Rochester Institute of Technology, Department of Computer Engineering, US
Research Assistant

Mentor: Dr. Dhireesha Kudithipudi & Dr. Ernest Fokoué
Research Fields: Neural Networks; Ensemble Learning; Topic Modeling

Teaching Experience

2019-2023   **University of Rochester**: Teaching Assistant, Guest Lecturer
- BST 426 [Spr 24] - Linear Models
- BST 426 [Spr 23] - Linear Models
- BST 467 [Spr 21] - Applied Statistics in the Biomedical Sciences
- BST 467 [Spr 20] - Applied Statistics in the Biomedical Sciences

2017-2018   **Rochester Institute of Technology**: Teaching Assistant
- STAT 747 [Spr 18] - Principles of Statistical Data Mining
- MATH 251 [Spr 17] - Probability and Statistics

Consulting Experience

- Department of Biostatistics, University of Rochester.
  Responsibilities: To assist members of URMC academic community with statistical design, data analysis, and software issues for their research.

- Environmental Influences on Child Health Outcomes (ECHO-UPSIDE project)
  Responsibilities: Statistical design, data analysis and paper writing for URMC ECHO researches using models such as ICC, PCA, CCA, LMER etc.

  – Prenatal Diurnal Cortisol paper: I carried out the statistical analysis by building the lmer model, wrote code for the team and revised the statistical section of the paper.
  – Adverse Childhood Experience paper: I developed the analytic approach in the paper, edited and revised the final draft.
  – Fetal Growth project: I wrote a function to calculate estimated fetal weight percentile based on infant demographics and help the team gain insights about fetal growth curve patterns.
  – Immune Age Difference paper: I introduced the "immune age difference," a novel variable reflecting the relative maturity of infants' immune systems.
  – Baby Cortisol Analysis project: I conducted statistical imputation method to resolve the missing data issue in the analysis.
  – Mom Postnatal Analysis project: I did statistical analysis to batch correct the problematic batches and outliers in the data.

Professional Service and Volunteerism

- **Treasurer**, *Research Triangle Regional Organization of Society for Risk Analysis (SRA)*, 2025 - Present
- **Officer & Webmaster**, *ASA Section on Text Analysis*, 2023 - Present
- **Poster Session Organizer**, *From Foundations to Future of Informatics in Health Symposium*, 2025
- **Journal Reviewer**, *Stat*, 2024
- **Journal Reviewer**, *Applied Stochastic Models in Business and Industry*, 2024
- **Session Chair**, "Approaches in Clustering for Analysis of Emerging Data Types", *JSM*, 2022
- **Committee Member**, *ICSA 2020 Applied Statistics Symposium Photo Contest*, 2021
- **Student Representative**, *ASA Text Analysis Interest Group*, 2020 - 2023
- **Event Editor**, *International Astrostatistic Association*, 2018 - 2020
- **Committee Member**, *ICSA 2020 Applied Statistics Symposium Talent Show*, 2020
- **Session Chair**, *8th Annual Conference of the Upstate New York Chapters of ASA*, 2019
- **Journal Reviewer**, *IEEE Transactions on Systems, Man and Cybernetics: Systems*, 2019
- **Session Organizer**, Chair Session "Application of Text Mining", *UpStat Conference*, 2018
- **Judge** for Pre-College Statistical Data Analysis Competition, *UpStat Conference*, 2018
- **Judge** for Undergraduate Data Competition, *ASA DataFest*, 2018
- **Mentor** for Data Competition, *ASA DataFest*, 2017 - 2018
- **Session Organizer**, Chair Session "Environment and Health", *UpStat Conference*, 2017
- **Technical Translator**, Deep Learning for NLP at Oxford with Deep Mind, *Big Data Digest*, 2017
- **Volunteer** for Imagine RIT: Innovation + Creativity Festival, *Imagine RIT*, 2017
- **Peer Mentor**, *CET Academic Programs*, 2015 *(Honored with Best Mentor via election)*

Presentations

Jan.2025   From Foundations to Future of Informatics in Health Symposium - Durham, NC, US - Ed90
            Poster, Image Processing with Optimally Designed Parabolic Partial Differential Equation

Aug.2024   Joint Statistical Meetings 2024 - Portland, OR, US - JSM24
            Poster, Image Processing with Optimally Designed Parabolic Partial Differential Equation

June.2024   59th Southern Regional Council on Statistics Summer Research Conferenc - Clemson, SC, US - SRCOS24
            Poster, Image Processing with Optimally Designed Parabolic Partial Differential Equation

Apr.2024   12th Annual Conference of the UPSTAT New York Chapters of ASA - Rochester, NY, US - UPSTAT24
            Contributed, Image Processing with Optimally Designed Parabolic Partial Differential Equation

Apr.2024   Johns Hopkins SMART WG seminar, Department of Biostatistics - Baltimore, MD, US - JobTalk
            Invited, Image Processing with Optimally Designed Parabolic Partial Differential Equation

Apr.2023   11th Annual Conference of the UPSTAT New York Chapters of ASA - Rochester, NY, US - UPSTAT23
            Contributed, A conditional approach for joint estimation of wind speed and direction under future climates

Mar.2023   SIAM Southeastern Atlantic Section Conference 2023 - Blacksburg, VA, US - SIAM23
            Contributed, A conditional approach for joint estimation of wind speed and direction under future climates

Aug.2022   Joint Statistical Meetings 2022 - Washington DC, US - JSM2021
            Topic Contributed, Text Mining and Music Mining

May.2022   UR Biostatistics Department Annual Student Workshop - Rochester, NY - URMC
            Seminar Talk, Partial Differential Equation & Kernel Smoothing Modeling In Image Analysis

Sep.2021   Classification and Data Analysis Group Conference - Florence, Italy - CLADAG
            Invited, Minimizing Conflicts of Interest: Optimizing the JSM Program

Aug.2021   Joint Statistical Meetings 2021 - Seattle (Virtual), US - JSM2021
            Topic Contributed, Minimizing Conflicts of Interest: Optimizing the JSM Program

Feb.2021   Data Science DC - Washington DC (Virtual), US - DSDC/TAIG
            Invited, Text Mining and Music Mining [**Video**]

Dec.2020   ICSA 2020 Applied Statistics Symposium - Texas (Virtual), US - ICSA2020
            Poster, Bayesian and Unsupervised Machine Learning Machines forJazz Music Analysis

Aug.2020   SIAM Conference on Mathematics of Planet Earth - California (Virtual), US - MPE20
            Contributed, Statistical Wind Conditions Assessment across inland and off-shore US under Future Climate Scenarios

Aug.2020   Joint Statistical Meetings 2020 - Philadelphia (Virtual), US - JSM2020
            Contributed, Naive Dictionary On Musical Corpora: From Knowledge Representation To Pattern Recognition

Aug.2019   Argonne National Laboratory - ANL/MCS
            Lightning Talk, Wind Conditions Assessment in North-America Under Climate Change Scenarios

Jul.2019   Joint Statistical Meetings 2019 - Denver, US - JSM2019
            Poster, Exploratory analysis of Hurricane Storm Surge

May.2019   IMS/ASA Spring Research Conference - SRC 2019
            Poster, Uncertainty Quantification in Tropical Cyclone Climatology

May.2019   Statistical Perspectives on Uncertainty Quantification (SPUQ) Workshop - SPUQ 2019
            Poster, Exploratory Analysis of Tropical Cyclone Climatology

Apr.2019   6th Bayesian, Fiducial, and Frequentist (BFF) Conferences - BFF 2019
            Poster, Bayesian and Unsupervised Machine Learning Machines for Jazz Music Analysis

Apr.2019   8th Annual Conference of the UPSTAT New York Chapters of ASA - UpStat 2019
            Poster, Text Mining and Music Mining

Nov.2018   SAMSI Model Uncertainty Program Storm Surge Working Group - SAMSI
            Seminar Talk, Initial Exploratory Analysis of Synthetic Storm Tracks *(30 minutes talk)*

Oct.2018	SAMSI Model Uncertainty Program Data Fusion Working Group - SAMSI
	Seminar Talk, Data Fusion for Music Mining *(40 minutes talk)*
Oct.2018	International Conference on Advances in Interdisciplinary Statistics and Combinatorics - AISC
	Contributed, Machine Learning for Music Mining with LDA Model, *SAMSI Academic Session*
Sep.2018	Data Science Research Group in Rochester Institute of Technology - DSRG
	Seminar Talk, Statistical Aspects of Music Mining *(80 minutes lecture)*
Sep.2018	Cornell Day of Statistics 2018 - Cornell
	Poster, Bayesian and Unsupervised Machine Learning Machines for Jazz Music Analysis
Jul.2018	Joint Statistical Meetings 2018 - Vancouver, Canada - JSM
	Poster, Bayesian and Unsupervised Machine Learning Machines for Jazz Music Analysis
Apr.2018	7th Annual Conference of the UPSTAT New York Chapters of ASA - UpStat 2018
	Contributed, Music Mining In Topic Modeling Approach For Improvisational Learning
Feb.2018	Graduate Seminar in Rochester Institute of Technology - RIT
	Seminar Talk, Topic Modeling with LDA Tutorial *(80 minutes lecture)*
Nov.2017	Graduate Showcase in Neuroscience and Signal Processing Session - RIT
	Contributed, Statistical Challenges of Echo State Networks
Nov.2017	6th Annual Conference of the UPSTAT New York Chapters of ASA - UpStat 2017
	Contributed, Statistical Aspects about Echo State Networks

Professional Affiliation

- American Statistical Association (ASA)
- Institute of Mathematical Statistics (IMS)
- International Astrostatistics Association (IAA)
- International Society for Bayesian Analysis (ISBA)
- Astrostatistics and Astroinformatics Portal (ASAIP)
- International Chinese Statistical Association (ICSA)

Skills and Interests

- **Programming:** Python, R, SAS, Matlab, LaTeX, SQL
- **Marathon:** Finish 26.2-mile journey in limited time, 2017, 2018, 2019
- **Music:** Perform Ghanaian and Senegalese music as member of African Percussion & Dance Ensemble
- **Other:** Zumba, Piano, Hot Yoga, Surfing, Snowboarding, Hiking, Climbing, Taekwondo, Sketching, Culinary Arts